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ABSTRACT

In contrast to public opinion, the relationship between school order and achievement is neither simple nor certain. While research shows individuals who misbehave perform poorly in school, it has not made clear why. Further, the evidence on order and achievement at the school level is even more limited. One inference drawn here is that failure to distinguish order as a product of coercion from order as a manifestation of self-discipline may result both in the failure of research to clarify the relationship between order and achievement and in the failure of schools to foster their highest purposes. Fifty-nine references are included. (Author/JD)

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High School Order and Academic Achievement

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Abstract

High School Order and Academic Achievement

In contrast to public opinion, the relationship between school order and achievement is neither simple nor certain. While research shows individuals who misbehave perform poorly in school, it has not made clear why. Further, the evidence on order and achievement at the school level is even more limited. One inference drawn here is that failure to distinguish order as a product of coercion from order as a manifestation of self-discipline may result both in the failure of research to clarify the relationship between order and achievement and in the failure of schools to foster their highest purposes.

High School Order and Academic Achievement

It would border on sacrilege to question order as a major cornerstone of the effective school. The importance of a disciplined and orderly environment to the educational process is the most common of common sense--as continually demonstrated in polls of public sentiment (Gallup 1985) and underscored by educational researchers (Purkey and Smith 1985a) and top policy makers (including both President Reagan and Secretary of Education Bennett). Despite this broad consensus among the public, the professors, and the politicians, it would be worthwhile to carefully examine the evidence garnered at the secondary level that supports the contention that school order is essential to effective schooling to make sure that this common opinion is not merely a common presumption. This study hopes to begin that process by looking at the evidence on order and achievement, focusing on several key quantitative studies that examine school order and achievement at the secondary level. Beyond examining the most appropriate quantitative evidence and making some suggestions where such research might go in the future, consideration also will be given to the nature of order and its roots in the concept of discipline, and the role both play in the process of education.

Limitations on the Evidence on School Order and Achievement

Despite the widespread perception of the importance of school order to

school learning, there appears to be only minimal empirical evidence directly addressing the relationship between the two. The studies that do exist are often cited — they are the foundational studies of the effective schools literature. The general critiques of this literature (e.g., Madaus et al. 1980; Purkey and Smith 1983, 1985b) are applicable to the specific area of school order and achievement. Of particular importance is the weakness of static evidence in making inferences about a dynamic process. For example: "Research that links student achievement to a low incidence of student disruption does not spell out how such climates are developed" (Hawley et al. 1984, p. 87).

Another limitation of much of the relevant research is its focus on elementary schools. "Since secondary schools generally differ from elementary schools in size, variability of pupil backgrounds, organizational complexity, diversity of goals, subject matter offerings, and developmental levels of the students, the application of elementary school findings to secondary schools needs to be made with caution" (Cohen 1983, p. 22). Further, application to the specific area of school disorder needs even more caution since both the quantity and quality of disorder differs between the two. Findings on fourth graders "acting up" may have only marginal relevance to eleventh graders committing armed assault.

A distinction also needs to be made between studies using various levels of analysis. Studies examining the relationship between school order and achievement necessarily must include a number of schools since the school must be (from some perspective) the unit of analysis. Needless to say, such studies are difficult, expensive and therefore relatively uncommon.

Likewise, studies of classroom order and achievement must include a number of classrooms.

Only studies of individual behavior and achievement or case studies of individual schools may be done on a relatively small scale, such as within one or two schools or using several classrooms, and are thus the most common. Unfortunately, individual-level studies provide only tangential evidence on the relationship between order at the classroom or school level and achievement. Still, the evidence such individual-level studies produce may be relevant to understanding the interconnections between school behavior and achievement.

Likewise, case studies of individual schools may provide a fruitful starting point for research on more representative samples. While such studies can produce a rich subjective base in which to ground more objective methods of study, individually they do not provide the kind of evidence which can be generalized to the population of schools at large. Beyond suffering from small and idiosyncratic samples, many case studies fall prey to the fallacy of post hoc ergo propter hoc, that is, they tend to attribute changes that have been observed to whatever came before — whether or not any causal forces were at work. Still, the evidence from systematic case studies, along with that which common, casual observation seems to give us all, provide at least a starting point for the large-scale study of the relationship over time of order and achievement in secondary schools.

Some General Findings about School Behavior and Achievement

One thing we do know is that school behavior and achievement are related -- whether examined at the individual, classroom, or school level. Beginning with individuals, it has been widely noted that students who misbehave in school are likely to do poorly in their school work. To make perfectly clear how much we do know about the nature of this observed relationship, it could be just as well stated that students who do poorly in school are likely to misbehave. Further, there are three separate (but not exclusive) possibilities for how such a correlation comes about: an individual's behavior influences that individual's achievement, an individual's achievement influences that individual's behavior, or other factors influence both the individual's behavior and achievement. This final category is generally termed sources of "spurious" causation, but careful examination of these causes indicate that some of them are indicative of legitimate causal relationships between behavior and achievement -- simply not at the individual level.

The possible individual-level influences on behavior and achievement can be divided into two classes: constitutional and environmental factors. One review (Reiter 1982) indicates a common neurological basis for some reading and behavioral disorders. So, some part of the relationship of behavior and achievement might be due to genetic or congenital defects. It is also possible that all or part of the greater tendency toward misbehavior on the part of males may have genetic origins. Likewise, the notable differences in grades, verbal achievement and math achievement between males and females

could also be due in part to genetic differences, although such contentions are in considerable debate (see Benbow and Stanley 1980, 1981, 1983; as well as responses to their research, e.g., Tomizuka 1981; Pallas and Alexander 1983). Even more debatable would be the possibility that racial differences in achievement (cf. Jensen 1969, 1980; with Light and Smith 1969; Flynn 1980) and behavior have some genetic basis. Even if the differences by gender and race in behavior and achievement are solely environmental, they still may create the appearance of a direct causal relationship between behavior and achievement where none exists, either at the individual or school level.

Environmental influences on behavior and achievement may also be divided into two categories: intrascholastic and extrascholastic. The most important extrascholastic influence on achievement and behavior is clearly the family. From the first Coleman study on equality of educational opportunity (Coleman et al. 1966), the importance of the family's influence on academic achievement has been widely acknowledged, and studies on delinquency long have demonstrated consistently a similarly powerful impact on behavior (Glueck and Glueck 1950). For example, children from single-parent households have been shown to have more discipline problems (Consortium 1980) and to have somewhat lower achievement (Hetherington et al. 1981). More generally, socioeconomic status is strongly related to both achievement and behavior. This is commonly assumed to indicate that higher SES families provide better social and intellectual support for their children as students. There are those, however, who argue that it is not SES but "school response to family background (that) is the cause of depressed achievement for low-income and minority students" (Edmonds 1983, p. 76).

That is, it is not the inherent disadvantage of poor children, Edmonds argues, but the discriminatory treatment that such children receive in "middle-class" schools that leads to academic failure.

Although related to SES, probably the most important contributions of families to either school achievement or behavior are conceptually distinct from social status or economics, that is, the values and behaviors taught at home. Particularly, the value a family places on learning and achievement in general seems to be particularly powerful in influencing the child's motivation toward learning. The academic success of certain immigrant groups (e.g., the Jews in past years, the Vietnamese more recently) in the absence of parental educational attainment provides ample evidence of that. Likewise, the value put on such things as courtesy and respect toward the parents at home may be significant determinants of behavior at school. Even more directly, what is learned at home -- intellectually and behaviorally-- may carry over to school. To the degree that home values and behaviors influence both school behavior and achievement similarly, home background may also be a source of the correlation between students' school behavior and achievement.

Another environment which obviously may influence both individual school achievement and behavior is the school itself. Components of the school environment of particular importance would seem to be the norms for achievement and order, especially as they are manifest in school performance and behavior rather than in rhetoric alone. This, it should be noted, is a distinct question from whether individual achievement influences individual behavior, or vice versa. The question here is, in part, whether other

students' behavior and achievement taken as aggregates influence individual student behavior and achievement. For example, while disruptive students may harm their own achievement, they may also hurt the achievement of others whose learning environment they disrupt.

Likewise, a school or class in which teachers, administrators, and other students in general have high standards of achievement, and work hard to meet them, may increase individual expectations and achievement and may tend to reduce individual disruption as such behavior is seen as socially dysfunctional. This is the type of ecological relationship that the effective schools literature usually terms academic press.

Drawing in instead of pushing out

Raising academic demands, increasing academic expectations, and focusing school time and energy more narrowly on the intellectual aspects of education epitomize the creation of academic press. Such an academic press, it is contended, is part of an effective school climate, and effective schools are characterized both by high levels of achievement and good discipline (Edmonds 1982). It is a reasonable expectation that academic press may push the majority of students to higher performance and in addition squeeze much minor misbehavior out the classroom door as the "dead space" that misbehavior once occupied is taken over with active intellectual work. This is the essential finding of Kounin's (1970) classic work on classroom management. As Basualdo and Basualdo (1980) note, the best prevention for disruptive behaviors is effective instruction.

But there is another possible impact of academic press (particularly

when it is instituted in an elitist fashion): the marginal student may be pressed out — first psychologically, then physically. When demands are increased on students already having difficulty meeting current demands, and no further consideration is given to their situation, failure will inevitably increase. Further, if academic expectations have been raised schoolwide, then the psychological significance of this failure is likely to be greater. This group, already at risk for misbehavior as marginal students, may become more deviant in their behavior as they seek to escape the psychological consequences of their failure by rejecting the norms that define it, and rebelling against the system which they may see as having created it (see Tinto 1980; Tinto et al. 1978). These so-called deviants, having left the school psychically some time before, often also find an early physical escape, either by dropping out or via expulsion.

Suggestions that schools are at least in part responsible for generating some of their behavior problems come from studies which show that deviant behavior decreases with school leaving (Bachman et al. 1971; Bachman et al. 1978) — regardless of whether the leaving is by graduation or by dropping out. That this may be because of school-imposed failure is suggested by another study (Wehlage and Rutter 1986) showing that self-esteem and internal locus of control increase both with school completion and with dropping out.

These studies imply that any research on school order and achievement

needs to be examined carefully to determine the appropriateness of the evidence it presents to the study of dynamic, school-level processes which are impinged upon by many external factors outside the control of the school. Further, evidence of "successful" strategies for maintaining order (even those that promote increased achievement) need to be surveyed broadly for any unintended negative consequences they may have on marginal students.

Studies of School Order and Achievement

Criteria for selection

While there are numerous studies of student behavior and multitudes on student achievement, only a few empirical studies deal directly with the relationship of order and achievement in secondary schools. Fewer still examine the relationship at a level of above that of the individual and thus directly address the question of the orderly school environment and achievement. When the element of time is added as a criterion, as is necessary for the appropriate study of change, the numbers of relevant studies is reduced to a handful.

Still, these studies do provide us with some useful information on the relationship of school order and achievement, though perhaps not nearly as much as the public consensus on the matter would suggest.

Fifteen Thousand Hours

One major study by Michael Rutter and his colleagues (1979) looked at 12 high schools in inner-city London. In contrast to some earlier studies of

schools (e.g., Coleman et al. 1966), this study did find evidence that differences between schools do make a difference on students. As they note, "In a part of inner London known to be disadvantaged in numerous ways, some schools were better able than others to foster good behaviour and attainments" (p. 93). In specific, the study showed substantial school-level correlations among delinquency outside school, misbehavior within school, attendance at school, and achievement in school — this constellation of intercorrelations indicating that schools which did well in one of these measures did well in the others. Because of the "intake" measures controlled for, the study also suggests that these differences in school-level performance were not likely to be due to pre-existing differences in student background, behavior or achievement.

While these general intercorrelations suggest something about the climate of effective schools, they do not demonstrate what exactly does lead to the creation of such a climate. Even though a longitudinal study such as this cannot produce unequivocal evidence of causation, by studying school processes and controlling for some major "input characteristics" of the students as this study did, some indirect evidence may be adduced. For example, the study showed that schools that give more emphasis to academics have better behavioral outcomes. In particular, they found that the frequency of homework for first-year students was associated with good behavior -- in fact even more so than it was with achievement. The researchers' explanation for this was that "homework may . . . be of symbolic importance in emphasising the school's concern for academic progress, and its expectation that pupils have the ability and self-discipline needed to work

without direct supervision" (Rutter et al. 1979, p. 110).

In a complementary fashion, the finding of a "paradoxical" negative relationship between a "pastoral emphasis" by the head teacher and behavior may have been due to the de-emphasis on academics. That is, schools which put too much emphasis on student behavior may neglect the fundamental academic role of the school — and, ironically, behavior may suffer because of it. This meshes with a survey of American school improvement programs which found that "noninstructional agendas are particularly common in schools beset by behavior problems, absenteeism, and vandalism" (David and Peterson 1984, p. 50). Further, the Safe School Study (NIE 1978, p. 168) found that troubled schools that had "turned around" seemed to be ones that had begun stressing the importance of academic excellence.

This finding also fits with the London students' understanding of the most important goals for school, which were found to be largely "instrumental" such as examination success and job preparation. "Evidently, schools which organised their approach to ensure some emphasis on academic matters not only achieved better results but also were more likely to be fulfilling their pupils' expectations" (Rutter et al. 1979, p. 114).

In a parallel fashion, teacher emphasis on academics as manifest in a series of classroom measures was consistently related to student behavior. The more time teachers' spent "on topic" and the less time "on equipment," the fewer lessons that ended early, the more time students spent working in silence and the more teachers interacted with the class as whole, the better behaved students were overall (not just in those particular classes observed). This expands the consistent finding (e.g., Kounin 1970) that

teacher management style (especially those aspects that maintain a focus on academic work) is related to student behavior within the same classroom. Interestingly, the Rutter group found these classroom process measures were more closely related to behavior than to the more "obvious" outcome of achievement, though both were positively associated. A weaker but even broader finding is that these same teacher behaviors were related to lower delinquency outside of school.

More directly discipline-related attitudes and actions at both the school and classroom level were also found to be correlated with student behavior, though generally not strongly or in any simple fashion. While schools with teachers who spent less time on disciplinary interventions had greater misbehavior, schools which had teachers with a "disciplinary rather than a 'welfare' approach to [behavior] problems" (Rutter et al. 1979, p. 121) had less. The study also found that students from schools that had consistent behavioral expectations and consistent discipline standards across the school or house (rather than leaving them to individual teachers) had somewhat less misbehavior and significantly less delinquency. While the official use of corporal punishment was related to marginally worse behavior and lower achievement, the unofficial use of physical punishments such as slaps or cuffing was clearly and significantly related to greater misbehavior. On the other hand, the use of academic sanctions for misbehavior (such as "extra lines of work") was significantly related to lower delinquency outside of school.

Because these pieces of evidence are correlations rather than demonstrations of impacts from deliberate interventions, the causal ordering

of these factors is not clear (e.g., disciplinary actions and punishments either may lead to misbehavior or follow it), these results "suggest the possibility that children's behavior is most likely to be good in schools when there is an agreed disciplinary approach, but not too much actual use of punishment" (p. 122).

While punitive sanctions were found to be variably related to behavior, rewards and praise both at the school and classroom level were found to be strongly related to good behavior. At the school level, the percent of pupils named for their good school work or behavior in assembly or other meetings was clearly associated with better behavior in school. The frequency of praise given for students' work in the classroom was clearly related both to better behavior in school and less delinquency out of school as well as somewhat higher achievement.

Also significantly related to pupil behavior are both the human and physical environment of the school. Specifically, schools where teachers reported being willing to see students at any time about a problem and actually did see more students had fewer behavior problems. In addition, schools that were cleaner and had more decorations such as plants, pictures and posters also had fewer behavior problems. These factors suggest that where students see overt indications that others care about them and about the school itself, they care more about their behavior as it relates to the school.

Another set of characteristics of the schools with lower rates of misbehavior are that students participate more and are given more responsibilities. Where more students have been form captains or homework

monitors, participated in assemblies, and made contributions to charity, school behavior is better. Even more powerful a factor, not only for behavior but attendance and delinquency as well, was the degree to which students were expected to take responsibility for their own resources such as books, folders and writing materials. As the researchers note, again there is some problem in determining which leads to which here. Still, "it appears that the schools' giving of responsibility may be in part a reaction to pupil behaviour; but that it also plays a part in developing an overall school climate, which itself helps to shape pupil behaviour" (p. 132). These findings coincide with some studies of school size (e.g., Barker et al. 1962) which suggest that because smaller schools involve more students in school activities they may be more effective socially if not academically (see also Garbarino 1978).

In summary, Fifteen Thousand Hours indicates that achievement is related to behavior at the school level, but gives no unequivocal indication of which leads and which follows. For behavior itself, it does suggest that schools are themselves important influences on student behavior. The authors conclude that it is not the characteristics of the children coming into the school that were most important but "that school processes constituted the predominant influence on children's behaviour in the classroom and the playground" (Rutter et al. 1979, p. 166). Likewise, the correlation between behavior and achievement suggests that schools effective in discipline are more effective in producing achievement, and vice versa.

High School and Beyond

Several recent American studies provide some additional evidence about the relationship between school behavior and achievement. An interrelated group of these studies are based on a major resource for the study of American secondary education: the High School and Beyond project directed by James Coleman. High School and Beyond (HSB) is a massive study which includes representative samples of students from over 1,000 high schools selected as representative of all American high schools both public and private. The surveys used omnibus instruments designed to address a multitude of questions of educational policy and practice. Because it was not specifically a study of behavior and achievement, it does not have the depth of the Rutter study, but because of its scale it still provides an excellent base from which to study school-level processes.

Among the more controversial products of HSB are Coleman's studies of public and private schools (e.g., Coleman et al. 1982a, 1982b, 1983c) which conclude that private schools were more effective than public schools in producing academic achievement primarily because private schools demanded more work and had more orderly environments. Not only was this conclusion in much dispute (e.g., Page and Keith 1981; Noell 1982), primarily on the basis that evidence from a single-wave survey could not produce dependable evidence of cause and effect, but even the differences between public and private schools that appeared to mediate the differences in achievement (according to Coleman et al. 1982) were contested as well (e.g., Goldberger and Cain 1982).

Of particular relevance was the assertion by Coleman, Hoffer, and Kilgore (1982) that an important difference between public and private schools was that private schools provide safer, more disciplined, and more

orderly environments than do public schools. Specifically, they found student perceptions of the behavior of other students in their school are related to significant differences in individual achievement. While these differences in perceived "school behavior" were found by Coleman et al. to be among the most important factors in the differences in achievement between public and private schools, their status as evidence of the impact of school policy is much in doubt (see Goldberger and Cain 1982, pp. 119-120). Still, even though the evidence is weak, the suggestion remains that these perceived differences in student orderliness might be in part responsible for differences in achievement.

Perceptions of the disciplinary climate, on the other hand, showed little consistent, direct relationship to achievement. The researchers (Coleman et al. 1982c, p. 75) argue that this is not because such things as perceptions of teacher interest, fairness of discipline, and effectiveness of discipline have no consequence. To quote, "once we recognize that disciplinary climate affects student behavior, then we can see that it may certainly have an effect, but through these variables." Goldberger and Cain (1982, p. 119) argue that the evidence makes it "clear . . . that it will be incorrect to credit both disciplinary climate and student behavior with positive effects upon achievement." Thus, these seemingly contradictory pieces of evidence cast doubt on all of the evidence presented by Coleman et al. that is based on the first wave of HSB, including that relating to the impact of disciplinary climate and student behavior on achievement.

Despite the expectations of the researchers before the second wave of HSB data was collected (e.g., Noell 1982, p. 132), longitudinal studies based

on the two-wave panel data have also produced controversial results (at least in respect to differences in performance between public and private schools). While those who originally found convincing evidence for the superiority of private schools continued to find it when using the panel data (Hoffer et al. 1985), those who were originally unconvinced remained unconvinced (Alexander and Pallas 1985; Willms 1985). While an apparently more detached observer (Jencks 1985) suggests that some academic advantage probably does accrue from private school attendance (but questions its significance), none of these public/private school studies using panel data focus specifically with the impact of student behavior and disciplinary climate on achievement.

Fortunately, another study using first-wave data from HSB (DiPrete 1981) examined student behavior more directly and looked at its relationship to achievement including some aggregate school-level measures. While this study again demonstrates that "students who do poorly in school have much higher rates of misbehavior than do students who do well" (p. xix), because it suffers from the same methodological weaknesses that plagued the first wave HSB studies of public and private schools, it does not even claim to demonstrate a causal relationship between the two.

The models it presents of behavior and achievement do indicate that the two are related, but not in any simple fashion however. In general, it suggests that individual achievement and "academic press" may influence behavior — but not always positively, and that individual behavior has little immediate, direct impact on achievement. Specifically, for males, when demographic characteristics are taken into account, higher achievement, grades, and pre-high-school educational expectations all are related to

reduced misbehavior, but being in an academic program is related to increased misbehavior. For females, being in an academic program and having higher grades are related to reduced misbehavior but higher average grades of other students in the school are related to increased misbehavior.

For both males and females, the DiPrete (1981) analyses suggest that the general level of behavior in the school (measured by average class cutting) and the individual's parents' monitoring of his or her behavior are the most important influences on misbehavior. Further, there is little suggestion for either males or females that a student's misbehavior is directly related to the achievement process (measured by time on homework) or achievement itself (as measured by self-reported grades).

A recent study using the two-wave panel data of HSB (Myers et al. 1987) provides better evidence than the earlier HSB studies, in what may be the best direct examination to date of the interrelationship of student misbehavior and academic performance at the individual level. One important methodological feature of this study is its use of a "selection bias" correction technique (Heckman 1976) to take differences in dropout rates between schools into account. It is worth noting that taking dropout rates into account is not only important as a statistical method but as practical one when aggregate test scores are used as measures of school performance. If they are not, schools that allow (or even promote) a high dropout rate will appear to have greater test score improvement than those that retain more of these typically marginal students.

Perhaps because of these are "lagged effects," Myers et al. (in contrast to DiPrete) found a consistent negative relationship between sophomore

misbehavior and senior achievement across measures of performance (reading and math test scores and self-reported grades). This negative relationship holds across subgroups (white males, white females, black males, and black females).

The relationship of sophomore achievement to senior misbehavior was also in evidence, but only for the self-reported grades was the relationship clear. For three of the four subgroups lower grades as sophomores were significantly related to increased misbehavior as seniors. For the fourth subgroup (black males), the relationship was also negative but just missed significance.

For measured achievement, there was essentially no relationship between misbehavior and achievement. Only for white females was there any significant relationship between the direct measures of achievement (test scores) and misbehavior -- and for them sophomore reading scores were related to worse senior behavior, and math to better.

So, this study (Myers et al. 1987) provides relatively strong evidence that individual misbehavior does hurt individual achievement in the longer term. Further, the evidence for the impact of achievement on behavior is, perhaps, stronger than it appears at first glance. Grades are clearly a more direct and prominent form of feedback than test scores for students' school success or failure. Thus, it may be reasonable to expect that grades would produce frustration (or satisfaction) more readily than achievement test scores which are often not emphasized or even known to students.

Because the study examined behavior and achievement only at the individual level, it provides no direct evidence about the impact of school

environment on achievement. So, while this analysis does provide valuable suggestions about the impact of achievement on behavior, it doesn't give any direct indications about the impact of school policy (such as academic press) or its results (such as behavioral climate) on individual behavior.

The evidence on school order and achievement

Perhaps what can be said most clearly about the relationship of school order and achievement is that the relationship isn't that clear, at least not in comparison to the simplified notions that most of us seem to hold. More than anything what this review suggests is caution in invoking the name of science as an endorsement of "order and discipline" as a panacea for all our current problems in secondary education. Before we can make such an invocation, we need more, and more appropriate, research on school order and achievement. Finally, this review seems to beg for a careful consideration of the nature of school order and its relationship to the broader concept of discipline as a starting point for this "new and better research."

Suggestions for Research on School Order and Achievement

Level of analysis and size of samples

The fundamental prerequisites for studies intended to address the causal relationship between school order and achievement have already been recounted: a number of schools examined over a period of time. This does not mean that schools must be the unit of observation or the unit of analysis. Because both behavior and achievement are the products of

individuals, it does make sense to analyze individuals even when the primary interest is in school effects. However, the analysis should at least allow for the analysis of school-level effects. Analyses done solely at the school level, after controlling for "intake characteristics," (such as that of Rutter et al. 1979) are also reasonable — as long as interpretations are made at the school level thus avoiding the so-called ecological fallacy (Robinson 1950). That is, the tendency to presume, for example, that a negative correlation between school order and average achievement means that students who misbehave do poorly. It may just as well be that it is the "orderly" students who are disrupted whose performance is poorer than might be expected.

Perhaps the best approach to such analyses is to include both the individual and the school. This can be done using multiple regression on individual data but including school variables such as binary-coded categorical variables to represent various policies or school means to represent such things as school socio-economic status (Pedhazur 1982). A more sophisticated analytical technique is hierarchical linear modeling (Bryk and Raudenbush 1987) which allows for the explicit analysis of differences in the structure of change relationships across various background and grouping variables. Thus, it will allow the examination of differences in achievement growth, for example, across environments with various discipline policies or levels of orderliness.

The number of schools which should comprise a study of "schools" depends upon the level and type of analysis used. If the unit of analysis is the school and multiple regression is the analysis technique, then the 1,000

schools of High School and Beyond is not an enormous number given the passive, correlational nature of the data and the large number of potential "intake characteristics" that can — and should — be controlled for in order to "equate" many, very different schools. If the study is based on active intervention, distinct policies or conditions and has intake equalized via random assignment (i.e., if it is a true experiment), then perhaps as few as two schools would be necessary — although more certainly would be desirable. For example, if a school district randomly assigned students, teachers and administrators to schools (perhaps following a court-ordered re-organization), then by randomly assigning to different schools different discipline policies, with as few as three or four schools useful results might be obtained. Even where policies weren't assigned, differences among administrators might provide a usable number of variants to allow for differences in impact. Still, the circumstances in which such true experiments might occur are certainly rare, and it is even rarer when they might be planned.

Observation over time requires that data be collected at a minimum of two points, preferably more (Bryk and Raudenbush 1987), sufficiently separated to allow for the operation of systemic processes which often occur over larger time frames than individual processes. Further, the collection of data should take into account natural institutional cycles, such that comparisons between years should be made at approximately the same point on the calendar.

Sources of secondary data

While the direct collection of theoretically shaped data across multiple time points and multiple school sites is desirable, it is also likely to be very expensive. A project such as High School and Beyond is only feasible with substantial outside funding. However, where data has been collected and archived over time, secondary analysis may be possible. The minimum requirement for such a study would be data series on both achievement and order or discipline policy. Currently, many states and districts have widespread testing programs that might provide yearly achievement data for a range of schools. If information on discipline policy is available via a source such as annual reports, a technique such as repeated measures ANOVA (or its multiple regression analogue) might be used to relate the two (Pedhazur 1982) in a school-level analysis.

Where achievement testing has been done systemically over a longer period (e.g., Iowa for the Iowa Tests of Basic Skills and New York for the Regents Examinations), time series analysis would be possible (Box and Jenkins 1976; Cook and Campbell 1979). Since the individual school (or district) would be the unit of analysis, such an analysis allows for comparison of achievement before and after a significant policy change (for example, a notable change in policy relating to suspensions or expulsions mandated by the school board). Finding several cases of significant policy changes in several schools or districts at different times would allow for the inferentially powerful analysis of "switching replications" (Cook and Campbell 1979).

Measures of order and discipline

Implicit in time series analysis is that change is relative — relative to previous levels of performance. One problem with many potential measures of school order that might be used in a time series analysis is that the meaning of "objective" measures of behavior may change over time (Campbell and Stanley 1963, p. 5), either slowly (e.g., with changing social definitions of acceptable behavior) or quickly (e.g., with the institution of a new "system"). For example, the meaning of "tardy" may slowly change over a period of years from one second late to five minutes late or quickly change as a tardy is defined by reports from homeroom teachers rather than by the number of students sent directly to the principal's office. So care must be taken to determine that such statistics are comparable over time. It is also important to be careful about using counts of school-imposed sanctions (such as suspensions and expulsions) as measures of misbehavior since the nature of school rules and their enforcement may influence these statistics more than student behavior.

Most of the research on order and achievement has limited itself to examinations of objective and absolute measures of both order and achievement. The empirical importance of subjective criteria, such as the perception of other students behavior, are suggested by the findings of Coleman et al. (1982), which showed they were related to differences in individual achievement. For some other discipline-related concepts (such as the fairness of a school's discipline policies), there are no objective criteria.

Theoretically, in some cases where there are objective criteria (e.g., number

of assaults), a subjective criterion (e.g., perception of safety) may be more directly related to individual academic outcomes, since psychological reality for an individual is the perception of reality and not some objective statistic. The point here is not that order is best defined subjectively, but that a range of conceptualizations are possible — and useful — each in their own place.

In addition, absolute measures of achievement (such as nationally normed test score percentiles) may not always be the best measures of achievement, at least when examining the impact of achievement on behavior. In the context of a theory of means-goals disjunctions, failure is relative (Gold 1978). For a student from an inner-city school, a score at the national average may be supreme success, while the same score for a student from an elite private school may be abject failure. Likewise, even letter grades must be considered relative to both those of other students within a reference group and to the student's own aspirations and the expectations of significant others.

A key point, one which is the focus of the following essay, is that discipline as an outcome cannot be measured solely in terms of overt behavior. As Stensrud and Stensrud (1981, p. 162) note, research that uses measures of overt behavior as the "only acceptable criterion for discipline" cannot comprehend the essential difference between two very different states: order enforced by coerced obedience and order emerging from self-discipline.

The Nature of Discipline and the Purpose of School

Discipline in the schools or discipline in the scholars?

One striking commonality of all of the studies reviewed here is their focus on order as demonstrated by observable behavior — and this was done for some very good reasons. But closer to the heart of the relationship of order and achievement is the concept of discipline. Discipline means many things to many people but in its common use can be separated into two distinct parts: an external manifestation and an internal condition.

External discipline is manifest as order in the school building. Its presence is characterized by well-behaved classes, clean halls, and quiet libraries that presumably provide the appropriate environment for learning. Its absence is characterized by riotous students, halls littered with trash and defaced with graffiti, and restrooms filled with marijuana smoke and threats of extortion, all of which create an environment that not only discourages learning but positively breeds vices inimical to it.

Internal discipline is manifest in an only indirectly observable order in the students' minds. It is the organization of personality, set of values, and condition of character that allow an individual to voluntarily behave in a manner appropriate to the situation. It is the will to resist the temptation to reduce oneself to the level of disorder of one's environment. Its presence is characterized by the clarity of thought and organization of knowledge, the self-motivation and personal responsibility that describe the highest ideals of education.

Its absence is characterized by confusion and ignorance, apathy and

irresponsibility -- the hallmarks of educational failure. Ironically, internal discipline is also the ability to deal with disorder -- to overcome it as an environmental obstacle to learning. It is the ability to create order in the midst of disorder, to find meaning in seeming chaos in the search for scientific truth.

While the concepts of external and internal discipline are distinct, the evidence presented here (especially Rutter et al. 1979) does suggest the possibility that an ordered physical and social environment is at least helpful if not necessary for inculcating an ordered discipline of mind. Even considering the evidence, several qualifications to that unqualified assertion should be considered. First, while a certain level of external order may be necessary for the cultivation of ordered minds, that does not necessarily mean the more order the better. Optimal environmental order may fall somewhere short of that found in a Marine Corps bootcamp -- or a well-run prison. While it may be that internal discipline cannot easily grow in the midst of chaos, many approaches to external order that consist of the heavy-handed application of rules and regulations may foster a superficial order that is detrimental to the ultimate aim of self-discipline. Lest we forget, rather than leading to order, repression often leads to revolution.

The disorderly process of education

The problem of disorder in the schools is not a new one. Historically, disorder and violence have been recurrent themes in the history of American education; in fact, only during the Puritan period was disorder not evident (Newman 1980). This should not be too surprising if one considers that the

raw material of the educational process is, in a sense, disorder. One way of conceiving of education is as the process of integrating students into the larger social order. This process of socialization is designed to bring students into the behavioral, intellectual, and moral order of the culture the schools represent. A process of bringing into order necessarily begins with some degree of disorder.

Beyond the disorder of less than perfectly socialized pupils, Grant (1985) argues that as a society we have introduced "purposive disorder" (to use Richard Sennett's phrase [1980] from his book Authority) by giving schools other tasks beyond ordinary socialization and education such as racial and religious integration. Thus, they have the job not only of socializing but of resocializing as well. But regardless of the sources of disorder (whether human nature or societal demands), schools must find some means for regulating it if they are to accomplish anything of value. These means, to the degree they are formalized, are the school's discipline policy.

Molding character versus regulating behavior

Codes of conduct (and set procedures to be followed when the codes of conduct aren't) define acceptable behavior (and the consequences that follow when behavior isn't). While such "laws," whether written or unwritten, are undoubtedly necessary for creating external order, they are clearly not sufficient. An orderly school environment occurs only when students (and staff) obey the current code of conduct. Such obedience may be obtained by consent or coercion. Where it comes only by force, external order may be achieved, but the ultimate purpose of education may be thwarted. Schools

that impose order, rather than cultivating it, may win no more than an uneasy truce while at the same time losing the hearts and minds of their students.

Following Grant (1985), we may note the relationship between the character of education and the education of character, specifically as it relates to discipline and order. Schools may come to what is apparently the same end by many different means. They may elicit order — or they may demand it. They may channel natural but potentially destructive energy into constructive pursuits, or they may operate a "zero sum game" that is guaranteed to produce failure and frustration (Gold 1978) — then expel the inevitably frustrated when they erupt. Both methods can produce order but order of differing kinds and at differing costs.

One clear suggestion of 15,000 Hours (Rutter et al. 1979) is that schools that focus their attention on order (apparently as an end) not only fail to accomplish that intermediate goal but their greater mission of academics as well. Wrong ends are dead ends — and those who work with schools must continually remind themselves that schooling itself, however appropriately focused, is not an end, but a means.

Except in the case of their peripheral functions as massive babysitting institutions or minor-league sports enterprises, what happens in schools is relatively inconsequential compared to what happens as a consequence of schools. While school deportment and achievement are important, they are not the ultimate goals of schooling. A student's school behavior is not as important as the values and attitudes the student carries away from school. A student's grades are not as important as the ability to think clearly and freely. Schools are not in the business of producing good students — either

in terms of behavior or academics. Schools are in the business of helping their students become workers able to invent, produce, and distribute creative and useful products, citizens responsible for their own lives and the lives of their families and communities, and, ultimately, people capable of appreciating fully the joys of life beyond school.

Notes

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